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other small birds nesting near the ground place their nests on long, slender twigs.

To some of the foregoing examples as illustrative of protective adaptation, it may be objected that individual cases occur where the very element is wanting which renders the peculiar structure or location of the nest protective. For instance the nest of *Onychorhynchus* does not always overhang a stream, and may even be placed far above the level of the highest flood; the nest of *Rhynchocyclus* is not always in a thorny acacia; *Myiozetetes* and *Tanagra cana* sometimes build their nests far from that of *Pitangus*, etc. It can only be answered that in analogous cases of adaptation thruout nature we will find the same sort of exceptions; and that the positive evidence is so largely in preponderance of the negative as to be obvious to any ordinary observer.

Anyone who has given the slightest attention to the breeding habits of birds is familiar with the fact that there is a wide range of individual variation within the limits of almost any species; and it is no less true that in cases where highly specialized nonstructural adaptations of any kind occur, the range of individual variation is likely to be still wider. We cannot in any of the foregoing cases regard the protective adaptations as dependent on perfectly rigid and definite laws of action, as in the case for instance with the migration of birds. Natural selection is still, doubtless, pre-eminently operative in compelling conformity to a set of peculiar conditions, whose very complicity implies immense variations in the effort, conscious or unconscious, to meet them. Whether these variations are dependent on slight structural differences, age, mere accident, or some other circumstances, is a matter very difficult to determine.

NESTING OF THE WESTERN EVENING GROSBEAK

(*Hesperiphona vespertina montana*)

By F. C. WILLARD

WITH ONE PHOTO BY THE AUTHOR

IN 1904 we were sufferers from an unusually dry winter and spring. The unusual conditions seemed to affect the migratory birds to a great extent and when I reached the Huachuca Mountains on May 11 the Western Evening Grosbeak was still present in small flocks of from six to a dozen individuals. A few days later, with O. W. Howard as a companion, I left for the Santa Catalina Mountains near Tucson. While spending a couple of days here among the pines at the summit, we found the flocks of grosbeaks making their rendezvous at Bear Wallow Spring, the only spring in that vicinity which had not gone dry. Ruby-crowned Kinglets were also present in considerable numbers, tho more often heard than seen.

The Kinglets seemed to be nesting and while looking for them we saw a pair of Grosbeaks fighting a Long-crested Jay which they presently drove away. The female Grosbeak promptly disappeared in the top of an immense fir tree where Howard's sharp eyes soon located the nest. We collected the set of three well incubated eggs the day following. The nest was eighty-six feet from the ground and twenty feet out from the trunk of the tree, near the tip of a horizontal branch.

This was my first experience with one of our rarest birds and, tho I kept a

careful watch for the next few years, I was only fortunate enough to see one pair. That was the last of May, 1908 in Ramsey Canyon of the Huachuca Mountains.

The spring of this year opened with two heavy snow storms on March 10 and 16, during the height of the migration of many northern birds. This delayed some of them several weeks and occasional pairs of several species which usually pass on entirely stayed to breed. The Western Evening Grosbeak was one of the species thus affected. Several Pine Siskins and one pair of Townsend Solitaires were also present and evidently nesting.

On May 30, while returning from a long tramp on the west slope of the mountains, I heard the unmistakable note of an *Hesperiphona* and saw a pair fly into a large pine tree which stood by itself in the bed of the canyon. They soon flew down into the brush, to the ground, and then back to the pine, the male following the female. I watcht them make several trips and was then compelled to leave them and hurry on toward my distant camp. They were building, the female carrying all the nesting material. I made a note to return for the set in ten days.

My chief occupation now became a watch for this rare and beautiful bird.



Fig. 21. NEST OF THE WESTERN EVENING GROSBEEK

June 1, while investigating a small side canyon in quest of Buff-breasted Flycatchers I heard the Grosbeak again and saw a pair flying off up the mountain side. They went over the ridge and out of sight. I sat down to rest a bit and await results. In about ten minutes I heard the female again and saw her fly into a small pine about one hundred yards below me. She alighted on one of the lower branches and sat perfectly still for some five minutes, neither moving nor making a sound. Then she walked along the branch and disappeared. I was promptly on foot and soon stood at the base of the tree. The nest with the bird on it was in plain sight thirty-five feet above me.

Strapping on my climbers I started up the tree with my camera and rope but she flew before I got up, and would not return. I placed my camera in position about twelve feet from the nest and descended, but a strong wind came up and I was afraid the eggs would be thrown from the nest; so after about fifteen minutes' waiting for her to return I climbed up again and took a picture of the nest and eggs alone, also a snapshot of the female as she sat on the dead top of a pine tree about fifty feet away. She was very noisy and restless, flying about from tree to

tree. It was some time, however, before her calls attracted the notice of the male. When he did arrive he seemed to scold and blame her and tried to drive her onto the nest.

The wind became so very strong I was forced to collect the nest and the four fresh eggs it contained, accomplishing it successfully with the aid of my rope, tho the shallow nest was none too safe a place as it was tost about at the end of the branch. The nest is well built for one of this species. It is made of pine twigs and lined with rootlets.

June 11, in company with Master Newton Wolcott, I collected the nest found being built on May 30. Incubation was well begun. The nest was well concealed among the thick bunches of needles at the tip of a branch fifty-five feet up. It was twenty feet out from the trunk and the female would not leave, tho I jarred the nest a good deal in roping the branch up to make the nest accessible. She did not leave until I almost touched her. The position of the nest was such that I could not photograph it. It was composed of twigs on the outside, then grass and rootlets with finer material for a lining.

While in the act of collecting this set a forest ranger came along and in his capacity as a game warden, questioned my right to collect. Persuasive talking on my part as I sat perchd above him, and a promise to send him my permit, which I had left in camp, finally overcame his objections and I was soon displaying my prize to him. We parted very good friends but I made up my mind to have my authority handy in the future.

On June 2, while watching some warblers in a clump of very tall fir trees I heard Grosbeaks again and saw a pair fly into the extreme top of one of the trees. The beginning of a nest was visible even at that distance. The female flew into an adjoining tree and proceeded to select and break off a suitable twig. Her powerful beak made the breaking of the twig seem easy. She made numerous trips while I watcht. One twig was so large it interfered with her flight and I could hear her wings strike it. She could not reach the nest with it so alighted some distance below and made several short flights till she reacht the nest and deposited her burden.

The male followed her all the time and "talkt" to her. When percht he used the loud call note, a single very loud staccato note which I am unable to describe. When in flight the soft note was used. Reduced to syllables it sounded like "Chéwey, chéwey, chéwey" with the accent on the first syllable.

The female also possesses these same notes but does not use them so frequently. On June 12 I collected this set. The female did not leave the nest until almost toucht. Perhaps the lateness of the hour, for it was after six in the evening, accounted for her reluctance to leave. The eggs were fresh. This nest proved to be ninety-five feet from the ground.

When busy feeding the birds are rather quiet. They walk along the branches from cone to cone and extract the seeds which seem to form the major portion of their bill-of-fare. Occasionally both birds sit motionless for many minutes apparently just resting.

The male seems much shyer than the female. He is very uneasy when the nest on which his mate is setting is approacht, and flies from tree to tree, uttering his loud call note a few times at each place of alighting. The eggs are strikingly similar to those of the Redwinged Blackbird. Three or four eggs seem to constitute the normal clutch.

I am in hopes that some more unusual spring weather will enable me to make a more intimate acquaintance with this interesting rarity.